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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,961	06/17/2005	Francesca Pignagnoli	62437	6667

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THE DOW CHEMICAL COMPANY.
INTELLECTUAL PROPERTY SECTION, P. O. BOX 1967
MIDLAND, MI 48641-1967

EXAMINER

COONEY, JOHN M

ART UNIT	PAPER NUMBER
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1796

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10/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/539,961	Applicant(s) PIGNAGNOLI ET AL.	
	Examiner John m. Cooney	Art Unit 1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,8-15,19,20 and 22-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,8-15,19,20 and 22-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Applicant's arguments filed 7-12-07 and 8-3-07 have been fully considered but they are not persuasive.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 8-15, 19, 20, and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hickey et al.(6,359,022) in view of Chow et al.(3,842,036).

Hickey et al. discloses preparations of rigid closed cell foams prepared from two component foam forming compositions wherein (a.) the polyols component includes aromatic polyester polyol, polyether polyol as desired, alkanes and water as blowing agents, as well as, other blowing agents, including, as a preferable species, formic acid, and hydrofluorocarbons, as desired, and other ingredients; (b.) the isocyanate component comprises, at least, specifically, Mondur 489 which is an aromatic isocyanate having a functionality of 3.0, and (c.) the two components are combined at various NCO indexes meeting those of applicants claims (see the abstract, column 1 lines 12-30, column 2 lines 41-51, column 4 lines 66-67, column 11 lines 65-67, column

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12 lines 55-57, column 13-15, column 21 lines 2-22, Example 10, Table 5, and claims 15 and 16, as well as, the entire document).

Hickey et al. differs from applicants' claims in that formic acid is not particularly required. However, formic acid is exemplified as a most preferred monocarboxylic auxiliary blowing agent (column 14 lines 44-45). Accordingly, it would have been obvious for one having ordinary skill in the art to have employed the formic acid of Hickey et al. in the preparations of Hickey et al. for the purpose of imparting their foam enhancing and producing effects in order to arrive at the products and processes of applicants' claims with the expectation of success in the absence of a showing of new or unexpected results.

Additionally, Hickey et al. discloses control of the amount of their blowing agents (see column 15 line 62- column 16 line 37) and control of amounts of the blowing agent for purposes of controlling the implementation of their result effective effect is within the purview of the ordinary practitioner in the art. Normally, changes in result effective variables are not patentable where the difference involved is one of degree, not of kind; experimentation to find *workable* conditions generally involves no more than the application of routine skill in the art of chemical engineering. *In re Aller* 105 USPQ 233. Similarly, the determination of *optimal* values within a disclosed range is generally considered obvious. *In re Boesch* 205 USPQ 215. Further, a prima facie case of obviousness has been held to exist where the proportions of a reference are close enough to those of the claims to lead to an expectation of similar properties. *Titanium Metals v Banner* 227 USPQ 773. (see also MPEP 2144.05 I)

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Hickey et al. differs from applicants' claims in that phenol formaldehyde novolak initiated polyalkylene oxide polyols are not exemplified as species in the description of the preferentially employed polyoxyalkylene polyether additional polyols of Hickey et al.'s invention (column 11 lines 65-67). However, Chow et al. discloses phenol formaldehyde novolak initiated polyalkylene oxide polyols to be useful polyether polyols in the formation of rigid polyurethane and polyisocyanurate foams for purposes of assisting in rigidity contribution and enhancing strength and stability properties in products formed (see column 1 line 46- column 3 line 22, as well as, the entire document). Accordingly, it would have been obvious for one having ordinary skill in the art to have employed the phenol formaldehyde novolak initiated polyalkylene oxide polyols of Chow et al. as the additionally employed polyoxyalkylene polyols in the preparations of Hickey et al. for the purpose of imparting their rigidity, strength, and stability contributing effect to the products realized in order to arrive at the products and processes of applicants' claims with the expectation of success in the absence of a showing of new or unexpected results. Chow et al. is looked to for the disclosure of the polyol of applicants' claims, and its disclosure is inclusive of employment of these polyols in the amounts as claimed by applicants. Further, the following applies here as well. Normally, changes in result effective variables are not patentable where the difference involved is one of degree, not of kind; experimentation to find *workable* conditions generally involves no more than the application of routine skill in the art of chemical engineering. *In re Aller* 105 USPQ 233. Similarly, the determination of *optimal* values within a disclosed range is generally considered obvious. *In re Boesch* 205

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USPQ 215. Further, a prima facie case of obviousness has been held to exist where the proportions of a reference are close enough to those of the claims to lead to an expectation of the same properties. *Titanium Metals v Banner* 227 USPQ 773. (see also MPEP 2144.05 I)

Applicants' provide no structure to their laminate other than requiring that the foam material be present. Accordingly, no patentable weight is afforded the limitations of claim 15.

Applicants' arguments have been considered, but rejection is maintained for the reasons set forth above.

The following arguments set forth previously are maintained:

Applicants' arguments as to amounts of respective components are addressed in the body of the rejection above.

As for the showing of results the following need to be considered:
Claims Must be Commensurate With Showings:

Evidence of superiority must pertain to the full extent of the subject matter being claimed. *In re Ackerman*, 170 USPQ 340; *In re Chupp*, 2 USPQ 2d 1437; *In re Murch* 175 USPQ 89; *Ex Parte A*, 17 USPQ 2d 1719; accordingly, it has been held that to overcome a reasonable case of prima facie obviousness a given claim must be commensurate in scope with any showing of unexpected results, and in order to establish unexpected results for a claimed invention, objective evidence of non-obviousness must be commensurate in scope with the claims which the evidence is offered to support. *In re Greenfield*, 571 F.2d 1185, 1189, 197 USPQ 227, 230 (CCPA 1978), *In re Linder*, 457 F.2d 506, 508 (1972), *In re Tiffin*, 448 F.2d 791, 792 (1971). Further, a limited showing of criticality is insufficient to support a broadly claimed range. *In re Lemin*, 161 USPQ 288. See also *In re Kulling*, 14 USPQ 2d 1056.

Results Must be Unexpected:

Unexpected properties must be more significant than expected properties to rebut a prima facie case of obviousness. *In re Nolan* 193 USPQ 641 CCPA 1977.

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Obviousness does not require absolute predictability. *In re Miegel* 159 USPQ 716.

Since unexpected results are by definition unpredictable, evidence presented in comparative showings must be clear and convincing. *In re Lohr* 137 USPQ 548.

In determining patentability, the weight of the actual evidence of unobviousness presented must be balanced against the weight of obviousness of record. *In re Chupp*, 2 USPQ 2d 1437; *In re Murch* 175 USPQ 89; *In re Beattie*, 24 USPQ 2d 1040.

Applicants' have not persuasively demonstrated unexpected results for the combinations of their claims. Applicants have not demonstrated their results to be clearly and convincingly unexpected and applicants have not demonstrated their showings to be commensurate in scope with the scope of combinations now claimed.

Applicants' arguments have been considered. However, rejection is maintained for the reasons set forth above.

Though formic acid is referred to as an "auxiliary" blowing agent used in conjunction with the other blowing agents disclosed by Hickey et al., such does not negate Hickey et al.'s disclosure of this species as a preferred carboxylic acid used in imparting chemically reactive foam forming effects.

Hickey et al. is maintained as the primary reference for adequately teaching the claim elements indicated in the rejection above, and Chow et al is maintained to adequately cure the deficiencies of this cited primary reference. Based on the evidence of record, the rejection does not fail based on the deficiencies of Hickey et al. or the lackings of Chow et al already found in the Hickey et al. reference. Additionally, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

As to applicants' showing of results, examiner maintains that the current evidence of record fails to establish a clear and convincing showing of new or unexpected results associated with the combinations of their claims that are commensurate in scope with the scope of the claims as they currently stand. Applicants' have not met their burden of "demonstrating substantially improved results" to be associated with the products and processes of the instant claims which are commensurate in scope with the scope of the claims as they currently stand. Further, applicants' have not met their burden of factually establishing improved fire retardation and smoke properties to be associated with the products and processes of the instant claims that are commensurate in scope with the scope of the claims as they currently stand.

Further, as to the new claims directed towards methods of improving fire retardancy of polyisocyanates-based foams, it is held that a showing of new or unexpected results attributed to the processes claimed would need to be established that are commensurate in scope with the scope of the claims in order to overcome the rejection set forth above.

Applicants' latest arguments have been considered. However, they are unpersuasive.

Applicants' arguments as to the amount values of their claims are noted and are maintained to be addressed and discussed in the body of the rejection and previous arguments set forth again, above. Additionally, it is noted that the full teachings of Hickey et al. must be taken for what it teaches or fairly suggest. Hickey et al. discloses water and carboxylic acids together as chemical blowing agent in its disclosure, discloses formic acid to be a preferred carboxylic acid, sets forth guidance for usage amounts(column 16 lines 18-26), and exemplifies chemical blowing agents in its examples at amounts of 1.5 parts by weight. Examiner maintains Hickey et al. to fairly suggest controls of the amounts of chemical blowing agents in order to arrive at the values of the ranges of amount values of applicants' claims such that the ranges of values of applicants' claims are properly maintained to be within the purview of the ordinary practitioner in the art.

As to the alkane blowing agents of applicants' claims, the selection of the alkanes is not a difference in Hickey et al. as selection of alkanes of applicants' claims are exemplified by Hickey et al., and the selection of amounts of alkane blowing agent is maintained to be a control within the purview of the ordinary practitioner in the art having Hickey et al.'s full teaching before him(see also, again, column 16 lines 29-37).

As to the particularly selected polyol initiator of applicants' claims, examiner maintains Chow et al. to be properly looked to in order to address the deficiencies of

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Hickey et al. Applicants' arguments as to the deficiencies of the references taken individually do not negate what is fairly suggested by the combined teachings of the cited prior art. Additionally, it is noted that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

As to the applicants' showing of results, it is maintained that the only showing of unexpected results commensurate in scope with the scope of applicants' claims are those identified in the interview dated 6-26-07. Examiner indicated that the only comparative examples with substantiated and clear and convincing evidence of new or unexpected results were comparatives 3 & 4. This comparison is persuasive for the specific blends of polyols of example 3, (A.) including the amounts, formic acid in the amount specified and/or from 1.5 -2.0, (B.) pentanes and/or the non-halogenated alkanes of the claims in the amount exemplified.

Examples 1 & 2 set forth an improper back to back comparison in that there are significant differences in the composition beyond the features being compared. 5 & 6 and 7 are not comparisons of the invention in that they do not contain the required physical blowing agent of the claims. Examples 8 and 9 set forth an improper back to back comparison in that there are significant differences in the composition beyond the features being compared, and it is not clearly established what difference the skin cure result is attributable to. It is not seen or established how examples 10-19 are relevant in

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addressing the rejection of record. It is maintained that no claim as they currently stand are allowable.

Applicants' further discussion of the results does not serve to demonstrate that the current showings of result are persuasive of a patentable invention for the scope of the claims as they currently stand.

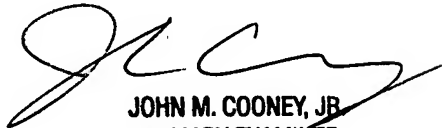
Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Cooney whose telephone number is 571-272-1070. The examiner can normally be reached on M-F from 9 to 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck, can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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